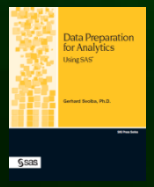
Europcar

Yield Management

Europcar Österreich



Presented by Gerhard Svolba (SAS Austria) on behalf of Europcar Austria
A2012 -- Cologne, June 15th, 2012

- **Disclaimer**

- This slidedeck was prepared by Europcar Austria in 2012 and presented at the A2012 conference in Cologne.

- It reflects the status of the project and the analytic activities at Europcar Austria in the year 2012.

Yield Management

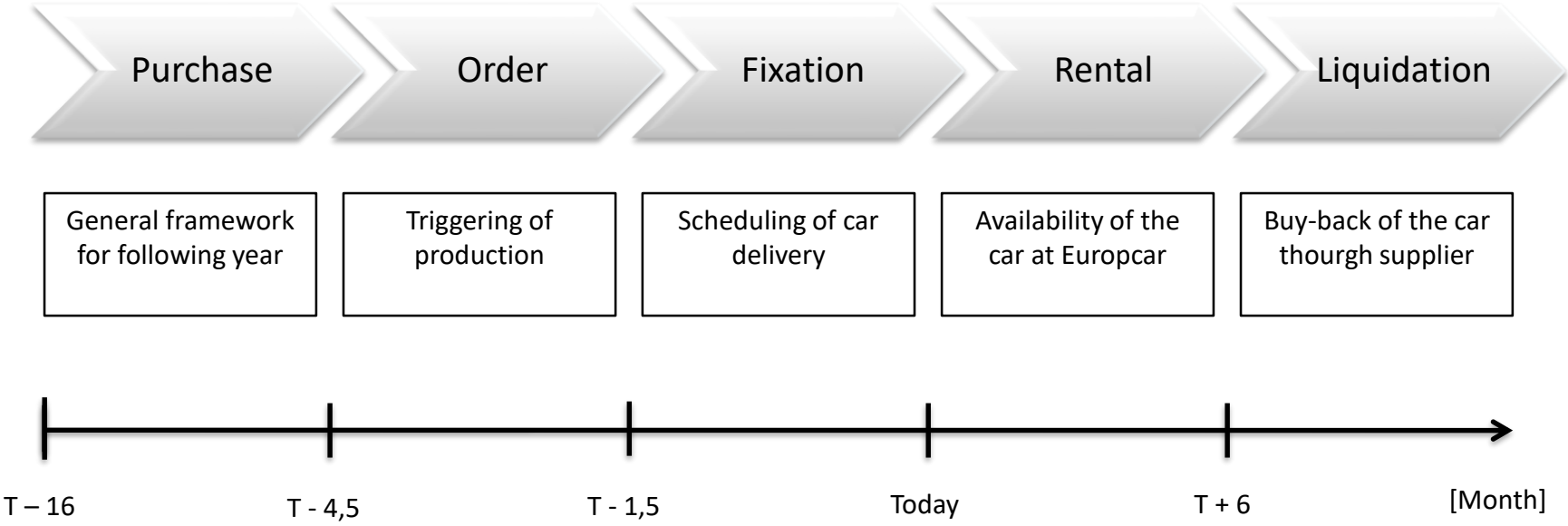
- **Content**
  - Facts and Figures
  - Information- & planning demand
  - System environment
  - Database
  - Forecasting
  - Optimisation
  - Benefits and Challenges

Europcar Austria

- **Facts and figures**
  - Leading car rental in Austria
  - 20 rental stations
  - 20 car groups
  - 2000 cars
  - 4 customer segments
  - > 100.000 contracts per year
  - 65.000.000 km/year

“Life-Line” of a car

- **Planning tasks along the lifeline of car**



“Life-Line” of a car

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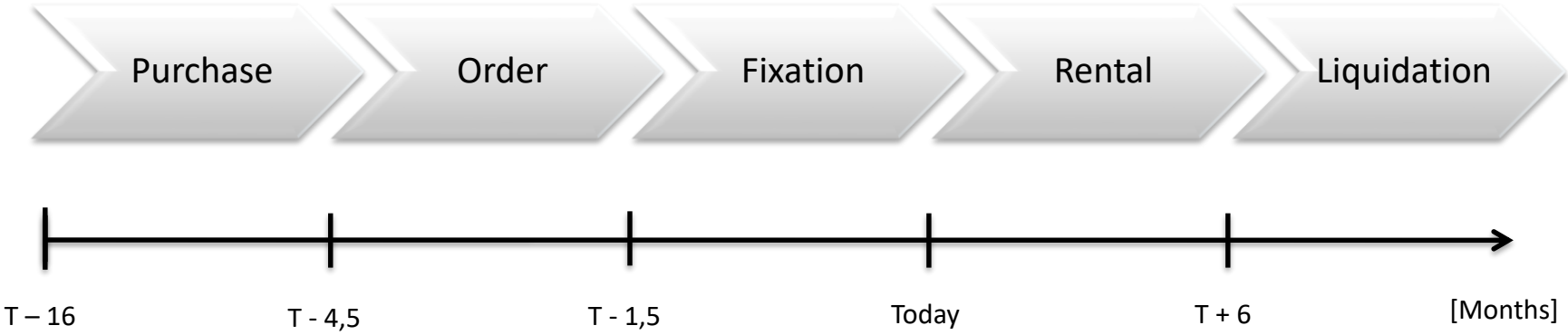


How many cars?	Cars per car type?	Fleet In / Fleet Out	In which rental station?

Depending on the forecast horizon, different information is needed.

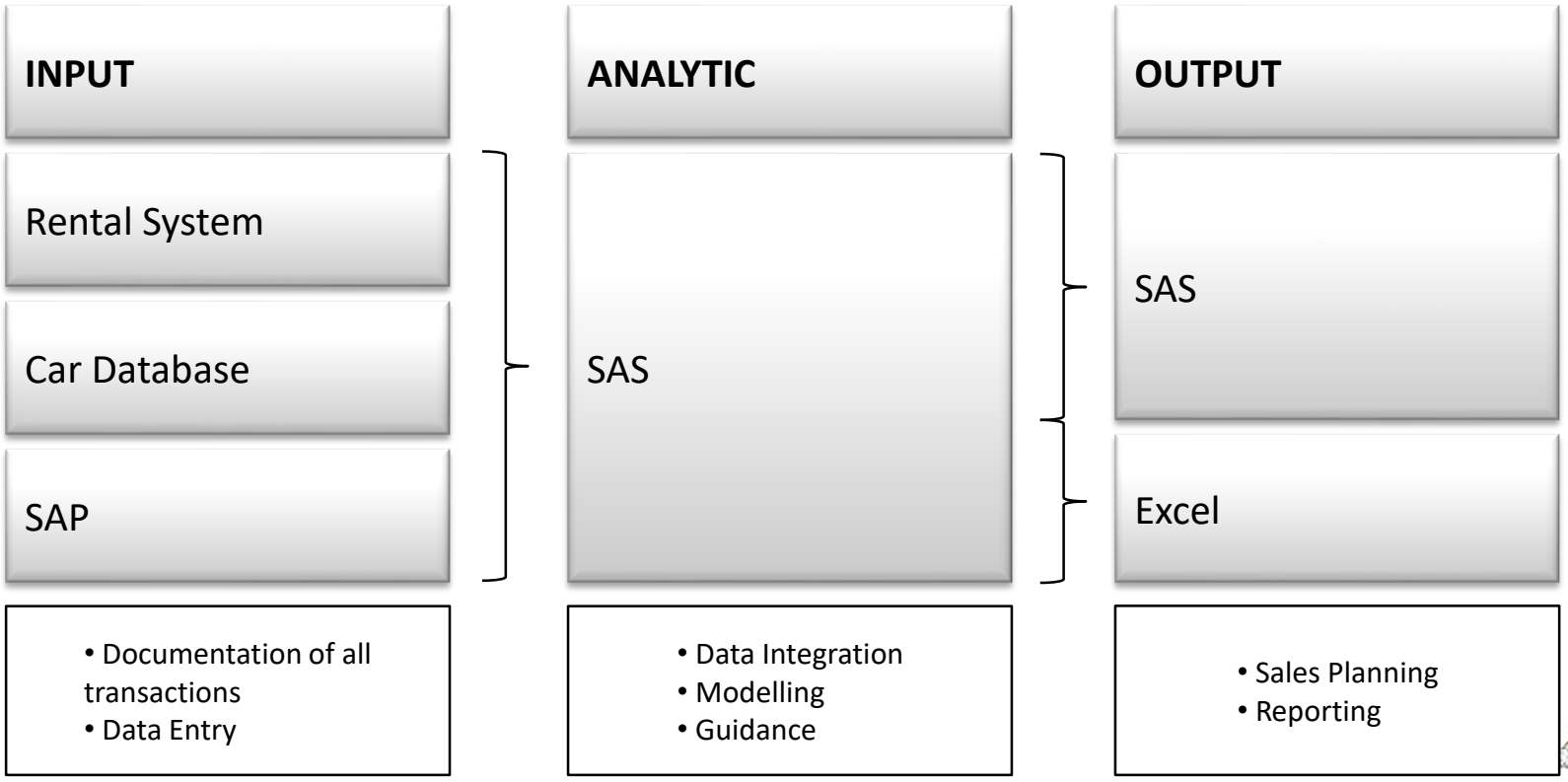
“Life-Line” of a car

- **Development of planning over time**

Frequency / TOOL	Yearly	Monthly	Weekly	
BUDGET	Number of Cars			
SPSS	Number of Cars	Number of cars per groups		
SAS	Number of Cars	Number of cars per groups	Fleet In – Fleet Out	Number of cars per station

Yield Management

- **System-Environment**



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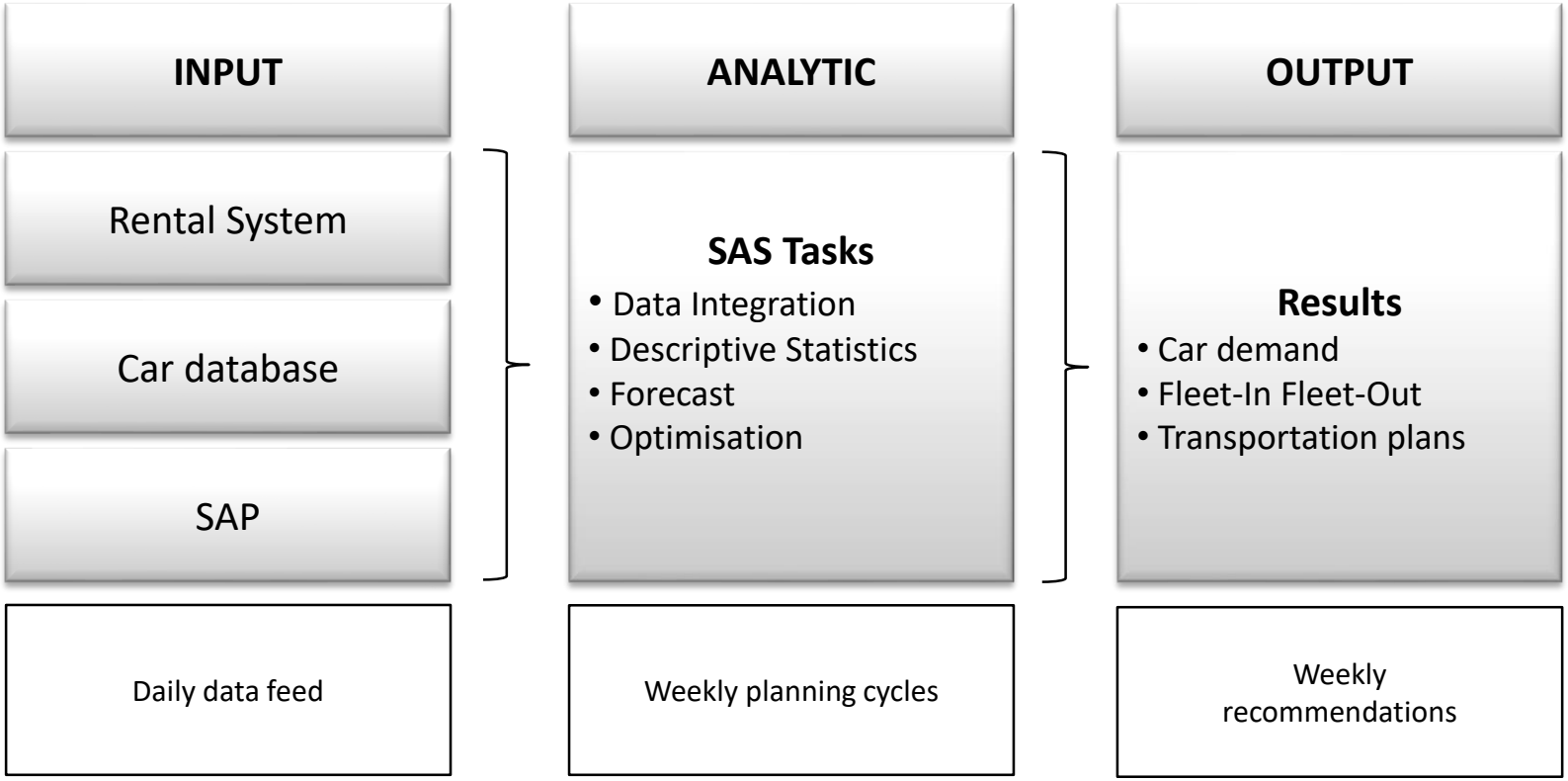
- **System-Environment**



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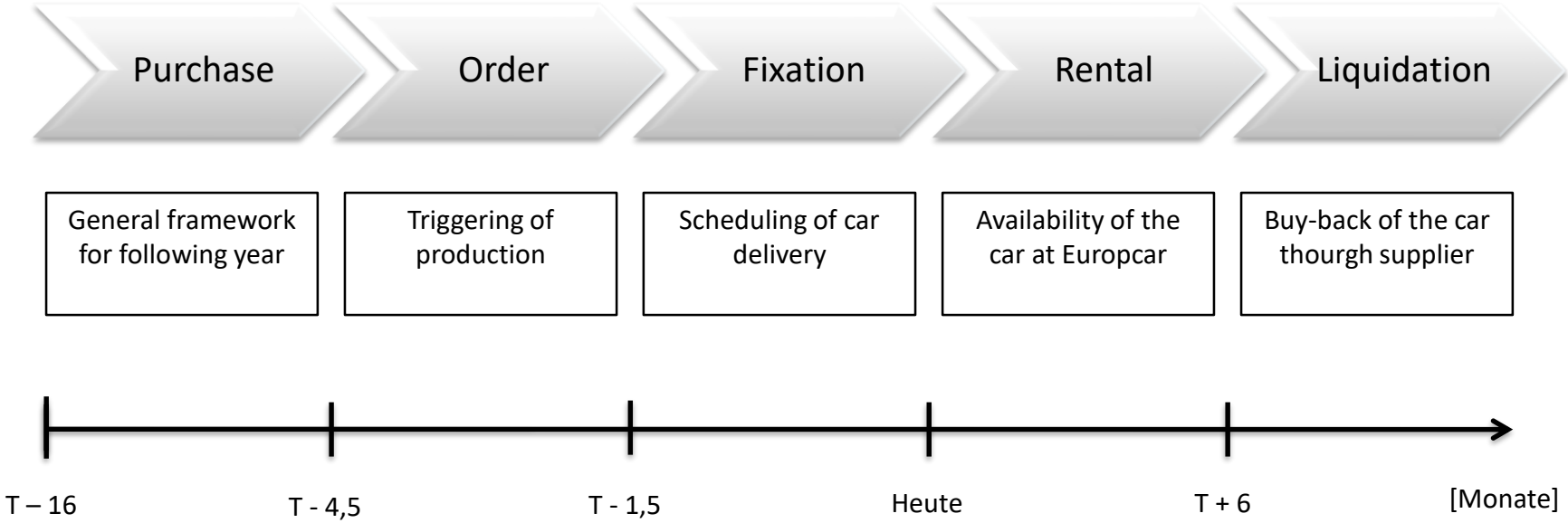
- **Database**
  - >110.000 rental contracts per year:
    - Check-Out Station (car pickup)
    - Check-In Station (car return)
    - Check-Out day (rental start)
    - Check-In day (rental end)
    - Leadtime (bookings in advance)
    - Car type
    - …
  - Product data
  - Customer data
  - Car Data

Data variety makes modeling in old systems hard

Different forecasting granularity on the "Lifeline" of a car

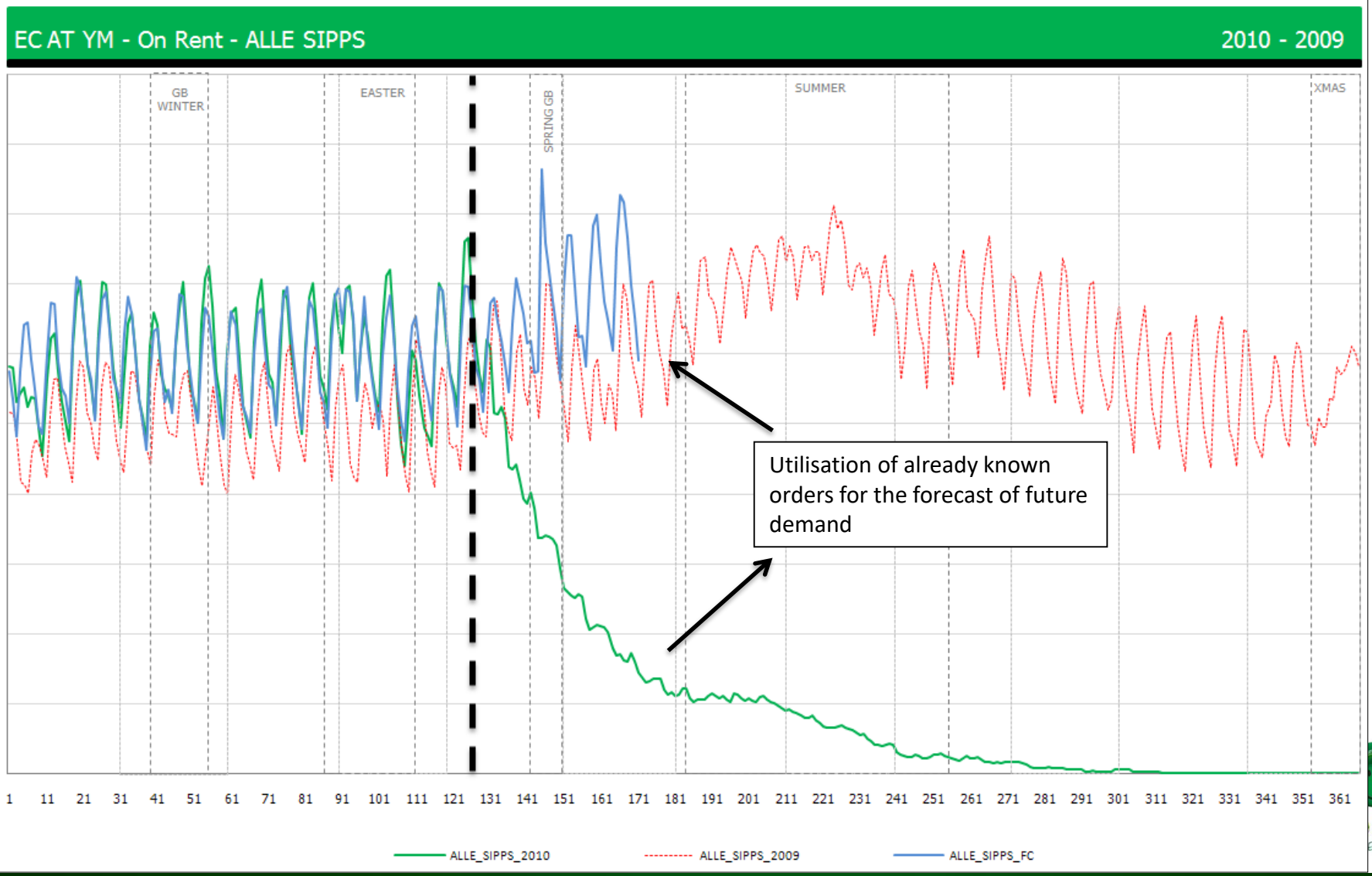
- **Planning tasks along the lifeline of car**



Yearly Forecasting (Budget Planning)

Weekly Forecasting (Fleet In/Out, Distribution)

Forecasting

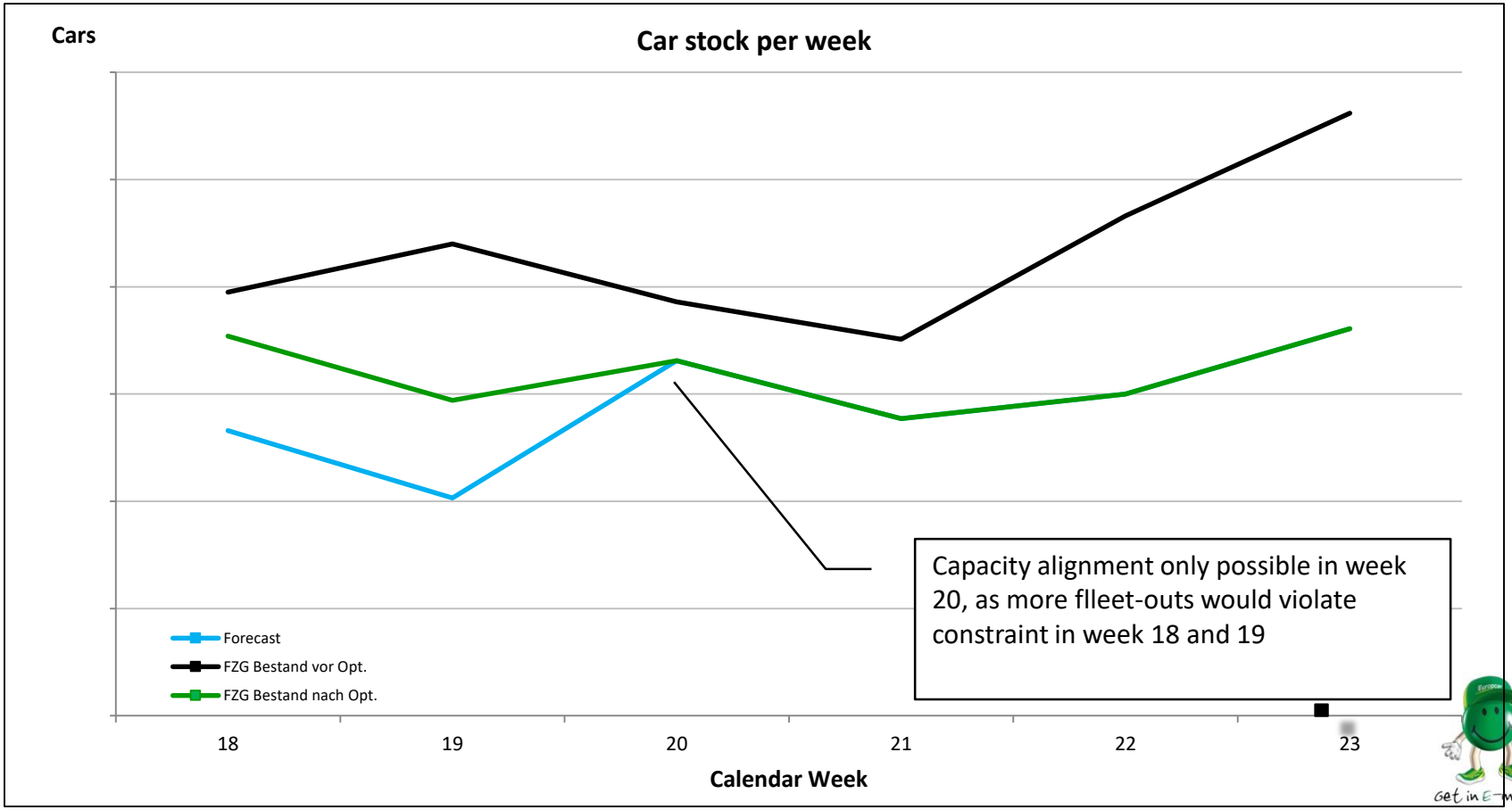


Fleet-In / Fleet-Out Optimsation

- **Optimize the weekly number of cars according to the expected weekly demand**
- **Procedure**
  - Use the expected demand for the next 6 weeks from forecasting
  - Use the current car stock
  - Use the minimum and maximum number of possible fleet-ins and fleet-outs per week
  - Determine via optimisation the optimal number of fleet-in and fleet-outs to minimize over- and understocking
  - Stock[w] = Stock[w-1]+ FleetIn[w] - FleetOut[w]
- **Note: optimisation procedures „overlook“ several weeks**
  - Result may not be optimal for one particular week, but over the timespan of 6 weeks.

SAS Weekly Planning

- **Fleet-In / Fleet-Out Optimsation**



Cost optimal transport plans

- **Weekly demand per rental station**
  - Positive number: more cars needed in this rental station
  - Negative number: cars available for distribution
- **Cost matrix**
  - Cost in Euros to distribute a car from R to C
- **Optimize the number of transfered cars between stations to satisfy demands and minimize cost**

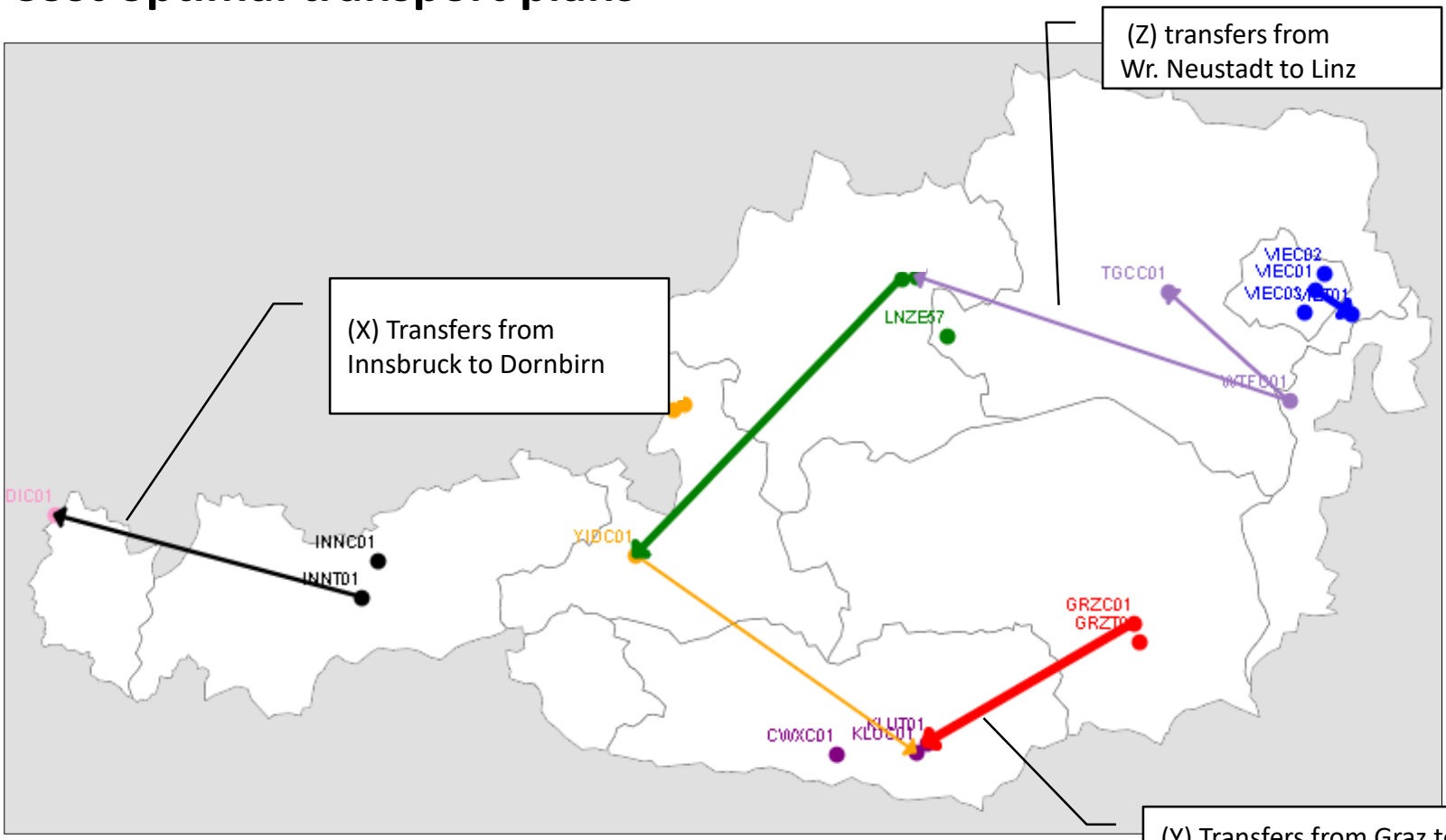
[1]	Bedarf
GRZ	
INN	
KLU	
LNZ	
QDI	
SZG	
VIE	
VIET	

Kostenmatrix

	GRZ	INN	KLU	LNZ	QDI	SZG	VIE	VIET
GRZ								
INN								
KLU								
LNZ								
QDI								
SZG								
VIE								
VIET								

Yield Management

- **Cost optimal transport plans**



Yield Management

- **Benefits and Challenges**

Benefits	Challenges

• Data Management
• Automatisation
• Central fleet control
• Data based recommendations
	• Organisation
	  • Disposition
	  • Utilisation of additional information
	• Acceptance
	• Statistic-service provider

Break event point reached within weeks!

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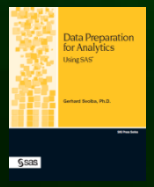

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